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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/881,662	06/15/2001	Kenji Tsukada	Q64982	6948

7590 01/14/2003

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EXAMINER

VO, ANH T N

ART UNIT	PAPER NUMBER
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2861

DATE MAILED: 01/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/881,662

Applicant(s)

TSUKADA ET AL.

Examiner

Anh T. N. Vo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on amendment filed on 10/15/2002
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-949) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 11-12 6) ☐ Other:

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FINAL REJECTION

Response to Applicant's Amendment

The rejection over Haykama et al and under 35 U.S.C. 112, second paragraph, have been withdrawn in view of the arguments presented in the amendments.

Rejections

Claim Rejections - 35 U.S.C. § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-37 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Hara et al (US Pat. 6,312,115) in view of Hasegawa et al. (JP Pat. 62095225) and further in view of Lichte (US 5,586,085) or Walker (EP1088668).

Note: The method steps are inherently taught in the apparatus device/limitations in the rejections as follow:

Hara et al disclose in Figure 17-18E and 19 an ink cartridge comprising:

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- a container body (1);
- a pressure reducing container (43) and a vacuum pump (45);
- charged ink (67);
- wherein a pressure in the ink body (1) is reduced to a pressure lower than an atmosphere pressure by the vacuum pump (45) and the container (1) is charged with the charged ink (67).

However, Hara et al. do not disclose the piezoelectric device for detecting a consumption condition of the liquid and the cavity provided for contacting the ink.

Nevertheless, Hasegawa et al. teach in Figures 1-5 an ink tank comprising a piezoelectric device (4,5) attached to the ink tank for detecting the remaining amount of ink or the ink consumption condition in order to alarm the operator but does not disclose that the cavity contacts to the ink.

Lichte teaches in Figure 4a a detector (110) attaching to the container (300) through a cavity (310) for enhancing the detection of the volume of the liquid.

Walker teaches an ink container in Figure 7 comprising a piezoelectric device (42) contacting the ink at the cavity as shown in Figure 7 to enhance the ink detection.

It would have been obvious to a person having skill in the art at the time the invention was made to incorporate the piezoelectric device taught by Hasegama and the cavity taught by Lichte or Walker into the ink container of Hara et al for the purpose of enhancing the detection of the remaining ink. It is noted that selecting the steps of assembling and refilling the ink container to reduce cost would be obvious to a person having skill in the art depending upon a

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particular environment or an application in which the modified ink container of Hara et al is to be used.

Response to Applicant's Arguments

The applicant argues that the cavity of the piezoelectric element 4 of Hasegawa does not contact the ink. The argument is persuasive. However, this limitation is suggested in the Walker reference and the Lichte reference as discussed above.

CONCLUSION

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Anh Vo whose telephone number is (703) 305-8194. The examiner can normally be reached on Monday to Friday from 8:00 A.M. to 4:00 P.M. The fax number of this Group 2800 is (703) 305-3431 or 305-3432.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

A handwritten signature in black ink, appearing to be 'Anh T.N. Vo', written in a cursive style.

ANH T.N. VO
PRIMARY EXAMINER

January 11, 2003